A BARBELL WEIGHT PLATE

Field of the Invention

This invention relates to a weight plate for use in physical exercise involving barbell curl bars.

Background of the Invention

Physical exercise involving the lifting of barbell and dumbbells to maintain muscle tone, physical fitness, or for bodybuilding requires the use of weights. The weights generally consist of plates having a circular configuration with a central opening for mounting the weight plate onto a curl bar. The plates are of various weight magnitudes to permit the amount of weight to be lifted to be adjusted in accordance with the exercise routine of the user. In some instances, such as in the case of some dumbbells, the plate and curl bar are integral. In the case of barbells, there are some designs where the weight and bar are integral. Typically, however, the weights are carried between end cap weights which lock the weights to the curl bar to prevent the weights from falling from the bar during the exercise. Thus, in the case of removable plates, if the user intends to either increase or decrease the amount of weight to be lifted, the user must undo the end cap or lock and remove the end cap from the curl bar to permit the additional weight to be mounted adjacent to the plates already in place on the bar. Since the weight is equally distributed at the opposite ends of the curl bar, the user, in order to modify the amount of weight to be lifted, must remove both end caps, slide an existing pair of weights from the bar, or slide new weights onto both ends of the bar followed by capping the ends of the bar.

It would be desirable to have weight plates which can be easily removed or added to the weightlifting curl bar without having to remove a weight lock or end cap; and subsequently, add or remove additional weights at each end of the bar. It is therefore an object of this invention to provide weight plates of various configurations that are easily mounted to and removed from the weightlifting curl bar to eliminate the necessity of having to remove an end lock or end cap and then remove or add a weight plate to the curl bar.

Summary of the Invention

There is, therefore, provided according to the present invention, a weight plate having a circular or polygon configuration that is composed of two bodies which are hinged to each other to permit the weight to be opened and closed for removable mounting to the weightlifting curl bar.

The present invention is directed to a weight plate for barbell or dumbbell use with weightlifting curl bars that consists of two bodies which are hinged together so that the bodies may be closed together or separated. A latch member is carried by one body and associated with the two bodies to close the bodies together or to separate them. When the latch member is in the closed position, the two bodies that are locked together may have a circular or polygon configuration with an opening preferably at the mass center of the two bodies when latched together; the opening permits the two bodies to be removably mounted to the weightlifting curl bar without having to slide the bar through the weight plate.

In one configuration of the invention, the two bodies when locked together have a circular configuration with a circular opening at the center. The opening at the center has a sufficient radius dimension such that upon closing the two bodies and latching them together, the weight plate will compressively engage the weightlifting curl bar. The opening may also have a regular polygon configuration having an apothem of sufficient dimension to permit the opening to compressively engage the weightlifting curl bar uniformly about its circumference.

In one embodiment, the two bodies are hingedly connected to close together or separate where a latch means is associated with the two bodies to selectively lock or unlock the two bodies. When the two bodies are locked together, the two bodies have a common opening extending through the two bodies preferably at their combined mass center; the center opening created by the latching of the bodies permits the two bodies to be removably mounted to a weightlifting curl bar. The center opening may be of a circular shape or of a regular polygon shape. When the center opening is of a regular polygon shape, the polygon apothem is of sufficient dimension to permit the opening to bear compressively against the weightlifting curl bar when the bar is enclosed by the two bodies.

In yet another embodiment of this invention, the two bodies are again hingedly connected to close together or to separate. As in other embodiments, a latch is associated with both bodies

to lock and unlock the bodies together. In this embodiment, when the two bodies are locked together, the bodies have a triangular configuration with an opening extending through the two bodies preferably at the mass center thereof to permit the two bodies to be removably mounted to the weightlifting curl bar. The opening preferably may have a circular configuration with a radius of sufficient dimension to compressively bear against the bar and enclose the weightlifting curl bar; or the opening may be of a regular polygon configuration having an apothem of sufficient dimension to permit the opening to enclose the weightlifting curl bar and compressively bear uniformly against the bar.

Brief Description of the Drawings

These and other features and advantages will become appreciated as the same became better understood with reference to the following specification, claims and drawings wherein:

FIG. 1 is a perspective view of the barbell weight of this invention having a circular configuration in the opened position.

FIG. 2 is a perspective view of the barbell weight of this invention in a circular configuration and in a closed position.

FIG. 3 is a top view of the closed circular configuration shown in Fig. 2.

FIG. 4 is a left side elevational view of Fig. 3.

FIG. 5 is a right side elevational view of Fig. 3.

FIG. 6 is a top view of Fig. 3.

FIG. 7 is a bottom view of Fig. 3.

FIG. 8 is a perspective view of the barbell weight of this invention having a polygon configuration in the opened position.

FIG. 9 is a perspective view of the barbell weight of this invention in a polygon configuration and in a closed position.

FIG. 10 is a top view of the closed polygon configuration shown in Fig. 9.

FIG. 11 is a left side elevational view of Fig. 10.

FIG. 12 is a right side elevational view of Fig. 10.

FIG. 13 is a top view of Fig. 10.

FIG. 14 is a bottom view of Fig. 10.

FIG. 15 is a perspective view of the barbell weight of this invention having a triangular configuration in the opened position.

FIG. 16 is a perspective view of the barbell weight of this invention in a triangular configuration and in a closed position.

FIG. 17 is a top view of the closed triangular configuration shown in Fig. 16.

FIG. 18 is a left side elevational view of Fig. 17.

FIG. 19 is a right side elevational view of Fig. 17.

FIG. 20 is a top view of Fig. 17.

FIG. 21 is a bottom view of Fig. 17.

Detailed Description

Fig. 1 is a perspective view of the preferred embodiment of this invention. Fig. 1 illustrates the barbell weight plate **1** of this invention in an opened position. Weight plate **1** has a circular configuration and is composed of a first body **2** and a second body **3**. First body **2** and second body **3** are hinged together by pivot pin **4**. As can be seen in Fig. 1, barbell weight plate **1** is bisected by the plane containing central axis **6**. The plane containing central axis **6** is substantially orthogonal to upper surface **7** of first body **2** and upper surface **8** of second body **3** and bisects barbell weight plate **1** substantially along a diameter such that both bodies may be described as having a diametric boundary surface **9** and **11**, respectively. As can further be seen in Fig. 1, first body **2** has a semi-circular boundary peripheral surface **12** that completes the peripheral boundary and second body **3** has a semi-circular peripheral boundary surface **13** that with diametric boundary **11** forms the peripheral boundary of second body **3**.

Referring again to Fig. 1, it can be seen that first body **2** carries a latch member **14** that has a handle **16** on one end and a shoulder latch **17** at the opposite end. Latch member **14** and shoulder member **16** are integral and are so mounted to permit latch member **14** to pivot upon a compressive force being applied to handle **16** in a direction radially inward toward the center of barbell weight plate **1**. A coil spring **10**, which can be seen in Figs. 4 and 5, biases latch member **14** such that handle **16** may only be depressed radially inward thereby rotating shoulder latch **17** outwardly in a radial direction. To provide for a smooth peripheral boundary surface, slot **18** is so dimensioned and proportioned to permit latch member **14** to be carried with the outer radial surface of latch member **14** and handle **16** substantially flush with the semi-circle peripheral boundary surface of first body **2**; second body **3** has a slot **19** that is so dimensioned and proportioned to permit latch member **14** to extend into slot **19** upon closing first body **2** and second body **3** together. First body **2** and second body **3** are locked together upon shoulder latch **17** gripping latch pin **21**.

Fig. 2 illustrates barbell weight plate **1** in the closed and locked position. As can be seen in the perspective view shown in Fig. 2, barbell weight plate **1** has an opening **22** that is circular and extends axially through barbell weight plate **1**. Opening **22** is a cylindrical void having as an axis central axis **6**. Although the curl bar is not shown in the drawings, when barbell weight plate **1** is opened as shown in Fig. 1, opening **22** or the cylindrical void permits barbell weight

plate **1** to be attached to a curl bar and then closed without having to slide the barbell weight plate onto the curl bar. Upon first body **2** and second body **3** being closed together as illustrated in Fig. 2, latch member **14** engages pivot pin **21** thereby locking barbell weight plate **1** to the curl bar.

Referring now to Figs. 3, 4, 5, 6 and 7, it can be seen that Fig. 3 is a top view of Fig. 2 and that the latch handle **16** and latch member **14** are flush with peripheral boundary surface **12** of first body **2** and peripheral boundary surface **13** of second body **3**. Although opening (or circular cylindrical void) **22** is shown to be of a cylindrical shape, opening **22** may also have a polygon shape where the apothem of the polygon is of a sufficient dimension to permit opening **22** to receive and compressively engage the curl bar when closed.

Another embodiment of this invention that is directed toward the configuration of the weight plate is shown in Fig. 8 where barbell weight plate **100** has a regular polygon shape. As in the preferred embodiment, barbell weight plate **100** is composed of a first body **102** and a second body **103** which are hinged together by pivot pin **104** to permit first body **102** and second body **103** to separate or to be closed. A central axis **106** extends through the center of the regular polygon shape and is contained in the plane that bisects barbell weight plate **100** along the radius of the regular polygon. First body **102** has a planer boundary surface **109** along the polygon radius and the remainder of the boundary surface encloses the semi-polygon **112**. Likewise, second body **103** has a planer boundary surface **111.** When first body **102** and second body **103** are in the closed position as shown in Fig. 9, planer boundary surface **109** and planer boundary surface **111** are tangent surfaces substantially contained in the plane bisecting the radius of the polygon and containing central axis **106**.

As above stated in the description of the preferred embodiment of this invention, the polygon shaped embodiment contains latch member **114** for opening and locking first body **102** and second body **103** together. Latch member **114** has a handle **116** and a shoulder latch **117** and is biased by coil spring **110**. Slot **118** permits latch member **114** and handle **116** to be mounted such that when the barbell weight plate is in the closed position, the latch member **114** is flush with the surface that is boundary surface **112** of first body **102**. As can be seen in Fig. 8, second body **103** has a latch pin **121** for engaging shoulder latch **117** of latch member **114**. Slot **119** is so dimensioned and proportioned that when first body **102** and second body **103** are closed

together, the portion of latch member **114** extending into slot **119** is flush with boundary surface **113** of second body **103**. The flush relationship between latch member **114**, handle **116**, and boundary surfaces **112** and **113** is more clearly shown in Figs. 9, 11 and 12. Latch member **114** is biased by coil spring **110** as shown in Figs. 11 and 12. By compressing handle **116** inwardly the opposite end of latch member **114** containing shoulder latch **117** rotates radially outwardly from the center of the polygon to unlatch from shoulder latch **121** thereby permitting first body **102** and second body **103** to open and rotate relative to each other about pivot pin **104**.

By referring to Fig. 9 as in the preferred embodiment, it can be seen that barbell weight plate **100** has an opening **122** that extends through the weight plate; opening **122** is a cylindrical void having a center coincident with central axis **106** that extends through the barbell weight plate. As can be seen in Fig. 8 in the open position, opening **122** is semi-circular void contained in first body **102** and in second body **103** such that upon closing the first and second bodies into a locked position, opening **122** has a standard diameter that is substantially the same diameter as the curl bar.

Fig. 10 is a top view of Figs. 8 and 9 and illustrates first body **102** and second body **103** locked together. To unlock and separate first and second bodies, handle **116** is radially depressed inwardly against the bias of coil spring **110** causing shoulder latch **117** to rotate radially outward thereby releasing shoulder latch **117** from latch pin **121**; the bias exerted against latch member **114** by coil spring **110** returns the handle **116** to a flush relationship with the boundary surface.

Although opening **122** is shown to be that of a right circular cylinder having a center coincident with central axis **106**, opening **122** may also be of a polygon shape where the apothem of the polygon is of sufficient dimension to permit the opening to compressively engage the curl bar when first body **102** and second body **103** are locked together.

Another embodiment that is directed toward the configuration of the barbell weight plate of this invention is shown in Figs. 15 – 20. In this embodiment, the barbell weight plate **200** has an equilateral triangle configuration with a central axis **206** located at the center of the triangle; i.e., the intersection of the apothems as can be seen in Fig. 15. The first body **202** is hinged by hinge pin **204** to second body **203** to permit first body **202** and second body **203** to be separated or to be closed by rotating the bodies relative to each other. Central axis **206** is contained in the

plane that bisects barbell weight plate **200** defining a planer surface **211** that is tangent to planer surface **209** where both surfaces are tangent to each other when first body **202** and second body **203** are closed together. As can be seen in Figs. 15 and 16, hinge pin **204** is located near the apex of the angle opposite the side of the triangle containing latch member **214** and latch pin **221**. As can further be seen in Figs. 15 and 16, peripheral boundary surface **212** of first body **202** contains slot **218** that is so dimensioned and proportioned to permit the radial boundary surface of latch member **214** and handle **216** to be flush with surface **212**. Figs. 18 and 19, which are left and right side elevational views of Fig. 17, illustrate the flush relationship of latch member **214** and handle **216** with boundary surface **212**.

Barbell weight plate **200** has an opening **222** which is a cylindrical void having a central axis **206** that is coincident with the center of the equilateral triangle, i.e., at the intersections of the apothems of the sides of the triangle. As in the other embodiments described above, the triangular configuration utilizes a coil spring **210** to bias latch member **214**. By depressing handle **216** radially inward, latch shoulder **217** moves radially outwardly. In the closed position of the first body **202** and second body **203**, latch shoulder **217** is latched to latch pin **221**; depressing handle **216** unlatches latch shoulder **217** and permits the two hinged bodies to be rotated relative to each other and removed from a curl bar. The opening **222**, as in the embodiments described above, may also be of a regular polygon shape where the apothem of the polygon is approximately the same as the radius of the curl bar. In all of the above embodiments, the barbell weight plate may be made of either metal, rubber, rubber encased, urethane, iron, or steel or combinations of the foregoing. Thus, when first body **202** and second body **203** are closed and latch shoulder **217** is in engagement with latch pin **221**, opening **222** compressively engages the curl bar (not shown) sufficiently to prevent the barbell weight from sliding off the curl bar.

While I have shown and described embodiments of a construction member for a magnetic construction toy, it is to be understood that the invention is subject to many modifications without departing from the scope and spirit of the claims as recited herein.